

KUCHIBHOTLA ET AL.
"Wireless Radio Network Resource Sharing
Among Core Networks And Methods"
Atty. Docket No. CS23738RL

Appl. No. 10/680,522
Confirm. No. 5055
Examiner C. Appiah
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REMARKS

Request for Reconsideration, Informal Matters, Claims Pending

The non-final Office action mailed on 23 March 2005 has been considered carefully. Reconsideration of the claimed invention in view of the amendments above and the discussion below is respectfully requested.

Claims 1-38 are pending.

Discussion of Rejection under 35 USC 101

Rejection Summary

Claims 27-33 stand rejected under 35 USC 101 as being directed to non-statutory subject matter. Office Action, 23 March 2005, para. 2. The Examiner asserts specifically that Claims 27, 29 and 33 appear to be drawn toward non-functional descriptive material.

Discussion

The Examiner asserts that Claims 27, 29 and 33 are drawn to "... a mere arrangement of data...." The Examiner then asserts contradictorily that the lack "... positively recited functionality since the function of 'indicating' relates to the data field not definitely [sic] ties to any data claimed as located in the data field." The Applicants note that a claim that does not recite any data cannot be a mere arrangement of data as asserted by the Examiner.

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Claims 27 is specifically drawn to a "wireless communications system information message" comprising "an information block ... including a data field for a number indicating how many core networks share a common access network." Claims 28 and 29 further characterize the message of Claim 27. Claim 30 is drawn to a "wireless communications system information message" comprising "an information block ... including a pointer to a location where identities for multiple wireless communications core networks sharing a common access network may be obtained." Claim 31 further limits the message of Claim 30. Claim 32 is drawn to a "communications system information broadcast message" comprising "an information block ... including a pseudo network identity identifying multiple core networks sharing a common access network." And Claims 34 is drawn to a "wireless network connection request message" comprising "an information block ... including a data field for indicating that a network entity may select, on behalf of a communication device, one of a plurality of core networks sharing a common access network."

Contrary to the Examiner's assertion, Claims 27, 29 and 33 are drawn to statutory subject matter. Particularly, Claims 27-33 are drawn to practical applications of electromagnetic energy. See MPEP 2106, IV, B, 1(c) "Natural Phenomena Such as Electricity and Magnetism".
Kindly withdraw the rejection under 35 USC 101.

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Discussion of Rejection under 35 USC 112

Rejection Summary

Claims 27-33 stand rejected under 35 USC 112, first and second paragraphs. Office Action, 23 March 2005, paras. 3 & 4. The Examiner asserts that the specification does not enable the subject matter of claims 27-33.

Discussion

Contrary to the Examiner's assertion, the subject matter of claims 27-33 is fully enabled by the description. An exemplary "system information message" is disclosed in the original specification on page 6, line 15 - page 11, line 2 in connection with FIGS. 2 & 3:

In one embodiment, illustrated in FIG. 2, the system information message 200 includes an information block, for example, a core network-identifying portion of the system information message, with a pseudo network identity, e.g., a pseudo PLMN ID, 210 identifying multiple core networks sharing a common access network. In other embodiments, pseudo core network identity may be located elsewhere in the system information message or in some other message. The pseudo identity in this embodiment is not associated with any particular core network. In at least some embodiments, the system information message is devoid of the identities, e.g., the proper identities, of any particular core network sharing the common access network. In a one particular implementation, a pseudo PLMN ID is located in an existing PLMN ID data field of an existing Release 5 GSM system information broadcast message. This exemplary implementation does not require a change to the structure of the existing Release 5 GSM system information broadcast message.

In the process diagram 300 of FIG. 3, at block 310, a communication device, for example, the mobile station 102 in FIG. 1, receives system information with pseudo core network identification information, for example, a pseudo PLMN ID. An exemplary system information message including this information is discussed above. At block 320, the

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communication device attempts to connect to a core network using the pseudo identification information, for example, by transmitting a connection or registration request including the pseudo identity and other information, which may be required pursuant to the particular connection protocol under consideration.

In one embodiment where the core network pseudo identity identifies multiple core networks sharing the common access network, the connection request based on the pseudo core network identity is rejected, since no particular network has been identified. In one embodiment, under these exemplary circumstances, at block 330, the communication device receives, for example, in the connection rejection message, the identities of the multiple core networks sharing the common core network. In another embodiment, the communication device also receives the core network domain identity that is supported by the core network, for example, a circuit switched domain and/or packet switched domain. In another embodiment, the communication device receives a list of services supported by the core network. The communication device may use any one or more of the foregoing information when performing core network selection.

In some embodiments, the connection rejection includes a new cause value to ensure that the communication device does not add the pseudo identity, e.g., pseudo PLMN ID, to a forbidden list of the communication device. In other embodiments the communication device stores the identity of both the pseudo PLMN and the assigned PLMN in either a Subscriber Identification Module (SIM) or a User Identification Module (UIM) or the communication device itself in order to assist in speeding up the core network selection process in subsequent connection attempts. In other embodiments, the communication device stores the identity of the pseudo PLMN and the core network rejecting the registration attempt in the SIM or UIM card or in the communication device.

In FIG. 3, at block, 332, having identified at least some of the core networks sharing the common access network, the communication device selects and attempt to connect to one of the core networks identified by sending a new connection request with the identification of the selected core network with any other information required pursuant to the applicable communications protocol. FIG. 3, at block 335, the device connects to the core network selected by the communication device.

In one embodiment, the communication device automatically selects the core network to which the communication device attempts to connect among the multiple core networks sharing the common access network. For example, the selection may be random or it may be based on an orderly or sequential selection process, for example, a round-robin selection. Also, the automated selection process may be weighted so that some core networks are selected proportionately more than others. In other embodiments, the communication device presents the multiple core wireless communications networks, for example, on a display, for manual selection. In some manual

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selection embodiments, the order of presentation of the multiple core wireless communications networks is changed when presented for selection.

In another embodiment where the core network pseudo identity identifies multiple core networks sharing a common access network, a network entity selects one of the multiple core networks to which the communication device attempts to connect, as illustrated in FIG. 3, at block 340. According to this embodiment, the communication device may indicate to the network entity that the communication device has no preference for selecting a particular core network. This information may be communicated to the network either expressly, e.g., in the connection request, or by implication. In one embodiment, the network entity may select the core network to which the communication device attempts to connect in a random process. In another embodiment, the network entity may select the core network to which the communication device attempts to connect in a round-robin fashion. An exemplary message having a dedicated field for authorizing the network to make the selection is discussed below. In FIG. 3, at block 335, the communication device connects to the core network selected by the network entity.

In another embodiment, the communication device sends, for example, in the connection request, preferred core network information to a network entity. The preferred core network provider information may or may not include the home core network information, e.g., the HPLMN, of the communication device. The network entity then selects a core network for the communication device giving consideration to the preferred core network information received from the communication device. This scheme could be used to avoid sending the list of core networks from the access network to the communication device in response to receiving a connection request based on a pseudo identity representative of multiple core networks.

In another embodiment, the communication device sends the identity of the communication device to a network entity. The identity can include, for example, International Mobile Subscriber Identity (IMSI), International Mobile Equipment Identity (IMEI), Temporary Mobile subscriber Identity (TMSI) among others. In one embodiment, the communication device sends its identity to the network with the connection request, and in another embodiment the network entity requests the identity of the communication device, for example, in response to receiving a connection request, devoid of the communication device identity, from the communication device. The network entity selects a core network from multiple core networks sharing a common access network for the communication device based on the communication device identity.

Another exemplary "system information message" is disclosed in the original specification on page 11, line 3 - page 15, line 12 in connection with FIGS. 4, 5 & 6:

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In another embodiment, illustrated in FIG. 4, the system information message 400 includes an information block, for example, a core network-identifying portion of the system information message, having a data field 410 for identifying how many multiple wireless communications core networks share a common access network. In other embodiments, the data field indicating how many core networks share the common access network is located elsewhere in the system information message or in some other message. In at least one embodiment including a data field indicating how many core networks share the common access network, the system information message is devoid of the any core network identity information, e.g., the proper core network identities. In one embodiment, the number is indicative of a number of core networks having different corresponding core networks identities. In another embodiment, the number is indicative of at least some core networks having different identities wherein at least some core networks having the same identity are counted more than once, for example, for weighting purposes, as discussed further below.

In another embodiment, illustrated in FIG. 4, the system information message also includes pseudo core network identity information 420 identifying multiple core networks sharing a common access network, as discussed above, in addition to the information identifying how many multiple wireless communications core networks share the common access network. The exemplary implementation of the system information message including information identifying how many multiple wireless communications core networks share the common access network may require a change to the structure of existing communications system information messages, for example, the Release 5 GSM system information broadcast message.

In the process diagram 500 of FIG. 5, at block 510, a communication device receives a system information message with information indicating how many core networks share a common access network. An exemplary system information message structure including this information is discussed above. In one embodiment, the message is devoid of core network identity information, e.g., PLMN IDs, particularly identifying the multiple core networks sharing the common access network.

In FIG. 5, at block 520, the communication device attempts to connect to a core network using the information about the number of multiple core networks sharing the access network. In one embodiment, each of the multiple core networks sharing the common access network are associated with a corresponding number within a range specified by the number of multiple core networks. As suggested above, in some embodiments, the more than one number may be assigned to the same core network. In embodiments where the system information message does not include information identifying the core networks sharing the common access network, the communication device may attempt to connect to a core network by specifying a number associated with the core network to which the communication device attempts to connect, without specifically identifying the core network by its proper identity, e.g., its PLMN ID. For example, if the

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system information message indicates that there are four (4) core networks sharing the common access network, number one (1) may correspond to one core network, numbers two and three (2 & 3) may correspond to another core network, etc. The communication device may thus identify one of the core networks by including its corresponding number in the connection request, without knowledge of its core network identification per se. In one embodiment, the communication device selects the core network to which it attempts to connect by a random selection process, so that the multiple core networks sharing the common access network have substantially an equal opportunity of being selected. The random selection process may be employed, for example, when none of the multiple core networks are on a preferred service provider list of the communication device, but where all of the core networks satisfy a threshold condition, e.g., based on quality or signal strength. If the initial connection attempt is successful the process ends at block 522.

More generally, N core networks may share the access network, and the N core networks can be further divided into up to M sub-core networks. One form of sub-core network differentiation is in the form of dividing the core network into a circuit switched core network and a packet switched core network. The circuit switched core network is connected typically to a public switched telephone network while the packet switched core network is connected to a packet network such as the Internet. Information about N and M can be provided to the communication device through the broadcast message and/or through dedicated messaging such as the connection reject message. The M sub-core-networks can refer to the different core network domains, e.g., circuit switched domain and/or packet switched domain that the corresponding core network supports. A core network may also support only one core network domain, in which case M = 1 for this core network.

In FIG. 5, at block 540, if the connection attempt is unsuccessful, the communication device receives a connection rejection from the network. In one embodiment, the communication device also receives the identities of at least some of the multiple core networks sharing the common core network, for example, the identities of all sharing core networks except the network for which the rejection was received. In another embodiment, the communication device also receives the identity of the core network that rejected the connection attempt by the communication device. The communication device may use this information to prevent future attempts to connect to certain core networks.

In FIG. 5, at block 542, in one embodiment, the communication device selects and attempts to connect to one of the core networks specifically identified, e.g., by PLMN ID, by sending a new connection request with the identification of the selected core network pursuant to the applicable communications protocol. The core network selection may be made automatically or manually, as discussed above or pursuant to some other scheme.

In another embodiment, the communication device permits a network entity to select the core network, for example, by transmitting a connection

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request with information indicating that the network should make the core network selection for the communication device. In one embodiment, the communication device includes information about the core network domain identity and/or the service desired in the connection request. FIG. 6 illustrates an exemplary message 600 having a dedicated data field 610, for example, a one-bit flag that is either set or not set by the communication device, to indicate whether the network may select a core network on behalf of the communication device. In FIG. 5, at block 544, the communication device connects to the core network selected either by the communication device or by the network entity.

An exemplary "network information message" is disclosed in the original specification on page 15, line 13 - page 18, line 21 in connection with FIGS. 7, 8 & 9:

In another embodiment, illustrated in FIG. 7, the system information broadcast message 700 includes an information block, for example, a core network identifying portion of the system information broadcast message, having a pointer 710 to a location where information, e.g., PLMN identities, for multiple wireless communications core networks sharing a common access network may be obtained. In at least one embodiment, the system information message including the pointer is devoid of the core network identity information particular to any of the core networks sharing the common access network. In another embodiment, the system information message also includes pseudo core network identity information 720 identifying the multiple core networks sharing a common access network as discussed above, in addition to the pointer information. The exemplary implementation of the system information message including information identifying how many multiple wireless communications core networks share the common access network may require a change to the structure of existing communications system information messages, for example, the Release 5 GSM system information broadcast message.

In the process diagram 800 of FIG. 8, at block 810, a communication device receives a system information message including pointer information indicating where the communication device may obtain information about multiple core networks sharing a common access network from which the message was received. In one embodiment, the pointer refers to another portion of the system information message, or to some other message or location where either the identities of the core networks sharing the common access network may be found, or alternatively where more specific pointer information may be found.

In FIG. 8, at block 820, the communication device obtains information on the sharing core networks using the pointer. In one embodiment, the pointer points to a location where identities, for example, the PLMN IDs, of at

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least some of the sharing core networks may be obtained. In another embodiment, the pointer references another location with more specific information where the identities of the sharing core networks may be obtained. In this exemplary embodiment, the communication device obtains identities, e.g., a PLMN or pseudo identity, for at least one of the core networks sharing the common access network. At block 830, the communication device attempts to connect to one of the multiple core networks using the information, e.g., the PLMN IDs, of the multiple core networks sharing the common access network. The communication device may select the one of the multiple core networks to which it attempts to connect either manually or automatically as discussed above.

In one embodiment, the communication device attempts to connect to the one of the multiple core networks using information about multiple core networks sharing a common access network from which the system information was received only upon satisfaction of a condition. If the system information message includes pseudo identity information for multiple core networks sharing a common access network, the communication device may attempt to connect to a core network using the common identity if the condition is not satisfied.

In the process diagram 900 of FIG. 9, at block 910, the communication device receives first and second system information corresponding first and second access networks. The first and second system information includes corresponding identity information, for example, PLMN IDs for multiple core networks or a pseudo PLMN ID identifying multiple core networks. FIG. 1 illustrates only a single access network, but generally the communication device 102 may receive system information from more than one access network. In one embodiment, at least one of the system information messages also includes information on multiple core networks sharing the corresponding access network, for example, the number of core networks sharing the same access network, as discussed above in connection with FIG. 4.

In FIG. 9, at block 920, under some selection circumstances, for example, where both access networks satisfy a signal quality condition, the communication device may be required to select one of the first and second core network identities for a connection attempt. In some embodiments, it is desirable to base the selection on the number of core networks sharing the corresponding first and second access networks. For example, if there are three times as many core networks sharing the first access network compared to the number of core networks sharing the second access network, the PLMN selection is based on a proportionate weighting of the first and second PLMNs.

In FIG. 9, at block 930, if the selected network identity is a pseudo identity, e.g., pseudo PLMN ID, representative of multiple core networks sharing a common access network, the communication device selects one of the multiple core networks sharing the corresponding access network based on information in the corresponding system information message, for example, as discussed above in connection with FIG. 5. In some

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embodiments, at least in the first instance, the selection is made without specifying the particular identity of the core network to which the communication device attempts to connect.

Claims 27-33 have been amended to recite a "wireless" message.
Kindly withdraw the rejections under 35 USC 112.

Response to Claim Objections

Objection Summary

Claims 5, 6 and 19 stand objected to informally. Office Action, 21 May 2004, para. 5.

Discussion of Claim 5

In Claim 5, the "... information about the multiple core networks indicating how many multiple core networks share the common access network" limitation further limits the "network system information" received in Claim 1. The act of "selecting" in Claim 5 further limits Claim 1. No correction is required.

In Claim 6, the "...the information about the multiple core networks sharing the common access network includes a number corresponding to the number of multiple core networks sharing the common access network, each of the multiple core networks associated with a corresponding number within a range specified by the number of multiple core networks sharing the common access network..." limitation further limits

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the "network system information" received in Claim 1. The act of "attempting" in Claim 6 further limits Claim 1. No correction is required.

Claim 7 has been amended to include limitations of Claim 6 and to depend directly from Claim 1. The "attempting to connect" act in Claim 7 further limits Claim 1.

Claim 19 has been amended to correct the typographical error.

Allowability of Claims Over Van Den Heuvel

Rejection Summary

Claims 1-5, 8-10, 15-4-15, 25 and 36-38 stand rejected under 35 USC 102(b) as being unpatentable over U.S. Patent No. 5,781,850 (Heuval). Office Action, 21 May 2004, para. 7.

Claims 3 and 26 stand rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 5,781,850 (Heuval). Office Action, 21 May 2004, para. 10.

Allowability of Claim 1

Regarding Claim 1, contrary to the Examiner's assertion, Heuval fails to disclose or suggest a

... method in a communication device, the method comprising:
receiving network system information,

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the network system information including information about multiple core networks sharing a common access network without identifying the multiple core networks;

attempting to connect to a core network based on the information about multiple core networks sharing the common access network.

Heuval discloses a plurality of communication systems (11-17) that communicate with a common communication system (19) via a wireline system (18). In Heuval, the communication systems (11-17) each employ different radio access technologies, e.g., Iridium, GSM, PCS, UMTS, ETACS, etc. The common network (19) of Heuval is not an "common access network" relative to the other communication systems (11-17) since each system in Heuval includes its own access network. The common network (19) in Heuval merely provides a list of other access networks (11-17) available to the subscriber unit (20), Heuval, col. 2, lines 51-58. The common network (19) of Heuval also provides other information about the systems (11-17) including frequency band, modulation scheme, etc. Heuval, col. 3, lines 20-27. This information would not be required where multiple core networks share a common access network.

Thus there is no reason for the subscriber unit (20) in Heuval to receive "...network system information including information about multiple core networks sharing a common access network without identifying the multiple core networks..." or to attempt "...to connect to a core network based on the information about multiple core networks sharing the common access network" as recited in Claim 1. Claim 1 is therefore patentably distinguished over Heuval.

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Allowability of Claims 2-5 & 8-10

Regarding Claim 2, contrary to the Examiner's assertion, Heuval fails to disclose or suggest in combination with the limitations of Claim 1,

... automatically selecting the core network to which the communication device attempts to connect among the multiple core networks sharing the common access network.

Heuval discloses manual selection of the communication systems (11-17). Heuval, col. 3, lines 9-11. Claim 2 is thus further patentably distinguished over Heuval.

Regarding Claim 3, contrary to the Examiner's assertion, Heuval fails to disclose or suggest in combination with the limitations of Claim 1,

... presenting the multiple core networks for manual selection at the communication device, changing the order of presentation of the multiple core networks.

Heuval does not disclose changing the order of the presentation of multiple core networks. Claim 3 is thus further patentably distinguished over Heuval.

Regarding Claim 4, contrary to the Examiner's assertion, Heuval fails to disclose or suggest in combination with the limitations of Claim 1,

... attempting to connect to the core network identified by a network entity.

Heuval discloses connecting to different access networks, not to different core networks. The communication systems (11-17) in Heuval each have different

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access networks. Claim 4 is thus further patentably distinguished over Heuval.

Regarding Claim 5, contrary to the Examiner's assertion, Heuval fails to disclose or suggest in combination with the limitations of Claim 1,

...information about the multiple core networks indicating how many multiple core networks share the common access network,

selecting the core network to which the communication device attempts to connect by selecting one of the multiple core networks without knowing identities of the multiple core networks.

There is no reason for Heuval to indicate how many core networks share a common access network since there is no such sharing in Heuval. Moreover, there is no reason for the subscriber unit in Heuval to select a core network since Heuval does not disclose sharing of a common access network among multiple core networks. Claim 5 is thus further patentably distinguished over Heuval.

Regarding Claim 8, contrary to the Examiner's assertion, Heuval fails to disclose or suggest in combination with the limitations of Claim 1,

... receiving a connection rejection from the core network to which the communication device attempts to connect, receiving identities for at least some of the multiple core networks sharing the common access network.

There is no reason for Heuval send a rejection from a core network since the subscriber unit in Heuval does not attempt to connect to

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different core networks. Claim 8 is thus further patentably distinguished over Heuval.

Regarding Claim 9, contrary to the Examiner's assertion, Heuval fails to disclose or suggest in combination with the limitations of Claim 1, "... receiving an identity of the core network to which the communication device attempts to connect." There is no reason for Heuval receive an identity of a core network since the subscriber unit in Heuval does not attempt to connect to different core networks. Claim 9 is thus further patentably distinguished over Heuval.

Regarding Claim 10, contrary to the Examiner's assertion, Heuval fails to disclose or suggest in combination with the limitations of Claim 8, "... attempting to connect to the core network based on a selection of the core network made at one of the communication device and a network entity." The subscriber unit in Heuval does not attempt to connect to different subscriber units. Claim 10 is thus further patentably distinguished over Heuval.

Allowability of Claim 14

Regarding Claim 14, contrary to the Examiner's assertion, Heuval fails to disclose or suggest a

... method in a communication device, the method comprising:

receiving system information,
the system information including pointer information indicating where the communication device may obtain information about multiple core networks sharing a common access network from which the system information was received;

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attempting to connect to one of the multiple core networks using the information about multiple core networks sharing the common access network from which the system information was received.

Heuval discloses a plurality of communication systems (11-17) that communicate with a common communication system (19) via a wireline system (18). In Heuval, the communication systems (11-17) each employ different radio access technologies, e.g., Iridium, GSM, PCS, UMTS, ETACS, etc. The common network (19) of Heuval is not a "common access network" relative to the other communication systems (11-17) since each system in Heuval includes its own access network. The common network (19) in Heuval merely provides a list of other access networks (11-17) available to the subscriber unit (20), Heuval, col. 2, lines 51-58. The common network (19) of Heuval also provides other information about the systems (11-17) including frequency band, modulation scheme, etc. Heuval, col. 3, lines 20-27. This information would not be required where multiple core networks share a common access network.

Thus there is no reason for the subscriber unit (20) in Heuval to receive "... system information including pointer information indicating where the communication device may obtain information about multiple core networks sharing a common access network from which the system information was received..." or to attempt "... to connect to one of the multiple core networks using the information about multiple core networks sharing the common access network from which the system information was received" as recited in Claim 14. Claim 14 is therefore patentably distinguished over Heuval.

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Allowability of Claim 15

Regarding Claim 15, contrary to the Examiner's assertion, Heuval fails to disclose or suggest in combination with the limitations of Claim 14,

...selecting the one of the multiple core networks to which the communication device attempts to connect using the information about multiple core networks sharing the common access network from which the system information message was received.

The subscriber device in Heuval selects a different access network, not a different core network. Claim 15 is thus further patentably distinguished over Heuval.

Allowability of Claim 25

Regarding Claim 25, contrary to the Examiner's assertion, Heuval fails to disclose or suggest a

... method in a communication device, the method comprising:

receiving information about multiple core networks sharing a common access network,

the information including at least one of identities of at least some of the multiple core networks sharing the common core network, core network domain information, information on services supported by at least some of the multiple core networks sharing the common access network;

selecting a core network to which the communication device attempts to connect using the information received.

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Heuval discloses a plurality of communication systems (11-17) that communicate with a common communication system (19) via a wireline system (18). In Heuval, the communication systems (11-17) each employ different radio access technologies, e.g., Iridium, GSM, PCS, UMTS, ETACS, etc. The common network (19) of Heuval is not an "common access network" relative to the other communication systems (11-17) since each system in Heuval includes its own access network. The common network (19) in Heuval merely provides a list of other access networks (11-17) available to the subscriber unit (20), Heuval, col. 2, lines 51-58. The common network (19) of Heuval also provides other information about the systems (11-17) including frequency band, modulation scheme, etc. Heuval, col. 3, lines 20-27. This information would not be required where multiple core networks share a common access network.

Thus there is no reason for the subscriber unit (20) in Heuval to receive "...information including at least one of identities of at least some of the multiple core networks sharing the common core network, core network domain information, information on services supported by at least some of the multiple core networks sharing the common access network..." or to select "...a core network to which the communication device attempts to connect using the information received" as recited in Claim 25. Claim 25 is therefore patentably distinguished over Heuval.

Allowability of Claim 26

Regarding Claim 26, contrary to the Examiner's assertion, Heuval fails to disclose or suggest in combination with the limitations of Claim 25, "...

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receiving the information in response to an unsuccessful core network connection attempt." Heuval does not disclose connecting to one of several core networks sharing a common access network. Claim 26 is thus further patentably distinguished over Heuval.

Allowability of Claim 36

Regarding Claim 36, contrary to the Examiner's assertion, Heuval fails to disclose or suggest a

... method in a communications network entity, the method comprising:
receiving a communication device identity from a communication device;
selecting a core network from multiple core networks sharing a common access network for the communication device based on the communication device identity.

Heuval discloses a plurality of communication systems (11-17) that communicate with a common communication system (19) via a wireline system (18). In Heuval, the communication systems (11-17) each employ different radio access technologies, e.g., Iridium, GSM, PCS, UMTS, ETACS, etc. The common network (19) of Heuval is not an "common access network" relative to the other communication systems (11-17) since each system in Heuval includes its own access network. The common network (19) in Heuval merely provides a list of other access networks (11-17) available to the subscriber unit (20), Heuval, col. 2, lines 51-58. The common network (19) of Heuval also provides other information about the systems (11-17) including frequency band, modulation scheme, etc. Heuval, col. 3, lines 20-27. This

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information would not be required where multiple core networks share a common access network.

Thus there is no reason for the common system (19) in Heuval to receive "...a communication device identity from a communication device..." or to select "... a core network from multiple core networks sharing a common access network for the communication device based on the communication device identity" as recited in Claim 36. Claim 36 is therefore patentably distinguished over Heuval.

Allowability of Claims 37-38

Regarding Claim 37, contrary to the Examiner's assertion, Heuval fails to disclose or suggest in combination with the limitations of Claim 36,

... at the network entity, receiving the communication device identity from the communication device in response to the network entity requesting the communication device identity."

Regarding Claim 38, contrary to the Examiner's assertion, Heuval fails to disclose or suggest in combination with the limitations of Claim 37,

... receiving a connection request from the communication device,
requesting the communication device identity in response to receiving the connection request from the communication device.

In Heuval, the common system (19) sends a list of communication systems (11-17) to the subscriber device in response to a request by the subscriber unit. The

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common system (19) in Heuval does not request the identity of the subscriber unit. Claims 37 and 38 are thus further patentably distinguished over Heuval.

Allowability of Claims Over Korpela

Rejection Summary

Claims 34 and 35 stand rejected under 35 USC 102(b) as being unpatentable over U.S. Patent No. 5,781,850 (Korpela). Office Action, 21 May 2004, para. 9.

Allowability of Claim 34

Regarding Claim 34, contrary to the Examiner's assertion, Heuval fails to disclose or suggest a

... method in a communications network entity, the method comprising:

receiving preferred core network information from a communication device;

selecting a core network for the communication device;

giving consideration to the preferred core network information received from the communication device when selecting the core network for the communication device.

The Examiner reliance on Korpela is misplaced. Korpela generally discloses updating protocol code in a mobile station. Particularly, at col. 6, line 38-42, Korpela discusses receiving, at the mobile station, a network type signal identifying a network type for which the mobile station has no stored protocol

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code file. At col. 6, line 43-46, Korpela discusses the mobile station receiving protocol code from a radio access network. At col. 6, line 52-56, Korpela discusses the same aforementioned process at the access network. Claim 34 concerns a network entity that selects a core network for a mobile station based on preferred core network information received from the mobile station. Claim 34 is thus patentably distinguished over Korpela.

Allowability of Claim 35

Regarding Claim 35, contrary to the Examiner's assertion, Heuval fails to disclose or suggest in combination with the limitations of Claim 34,

... receiving the at least one preferred core network from a communication device in a connection request from the communication device.

Korpela does not disclose a network entity that selects a core network for a mobile station. Claim 35 is thus further patentably distinguished over Korpela.

Allowability of Claims Over Van Den Heuvel & Barber

Rejection Summary

Claims 6, 7, 12, 13 and 16 stand rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 5,781,850 (Heuval) in view of U.S. Patent No. 5,442,806 (Barber). Office Action, 21 May 2004, para. 11.

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Allowability of Claim 6

Regarding Claim 6, contrary to the Examiner's assertion, Heuval and Barber fail to disclose or suggest in combination with the limitations of Claim 1,

... the information about the multiple core networks sharing the common access network includes a number corresponding to the number of multiple core networks sharing the common access network,

each of the multiple core networks associated with a corresponding number within a range specified by the number of multiple core networks sharing the common access network,

attempting to connect to the core network includes transmitting a message specifying the number associated with the core network to which the communication device attempts to connect.

Heuval and Barber both indicate the identity of the communication systems, rather than associating each of the multiple core networks with a corresponding number within a range specified by the number of multiple core networks sharing the common access network. Barber merely discloses selection of a carrier frequency based on a preferred provide list. Neither reference discloses multiple core networks sharing a common access network. Claim 6 is thus further patentably distinguished over Heuval and Barber.

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Allowability of Claim 7

Regarding Claim 7, contrary to the Examiner's assertion, Heuval and Barber fail to disclose or suggest in combination with the limitations of Claim 1,

... the information about the multiple core networks sharing the common access network includes a number corresponding to the number of multiple core networks sharing the common access network,

each of the multiple core networks associated with a corresponding number within a range specified by the number of multiple core networks sharing the common access network,

at least some of the multiple core networks sharing the common access network having corresponding different core network identities,

attempting to connect to the core network includes transmitting a message specifying the number associated with the core network to which the communication device attempts to connect.

Heuval and Barber both indicate the identity of the communication systems, rather than associating each of the multiple core networks with a corresponding number within a range specified by the number of multiple core networks sharing the common access network. Barber merely discloses selection of a carrier frequency based on a preferred provide list. Neither reference discloses multiple core networks sharing a common access network. Claim 7 is thus further patentably distinguished over Heuval and Barber.

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Allowability of Claim 12

Regarding Claim 12, contrary to the Examiner's assertion, Heuval and Barber fail to disclose or suggest in combination with the limitations of Claim 1,

... attempting to connect to the core network includes sending a connection request, the connection request including an identity of a home core wireless communications network of the wireless communication device.

Heuval connects to different access networks, not to different core networks connected to a common access network. The Examiner asserts that Barber makes home network information available to a subscriber device. Claim 12 states that the communication device includes the identity of its home network with a connection request. Claim 12 is thus further patentably distinguished over Heuval and Barber.

Allowability of Claim 13

Regarding Claim 13, contrary to the Examiner's assertion, Heuval and Barber fail to disclose or suggest in combination with the limitations of Claim 1,

... attempting to connect to the core network includes sending a connection request, the connection request including identities of at least some preferred core wireless communications networks.

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Heuval connects to different access networks, not to different core networks connected to a common access network. Barber merely discloses selection of a carrier frequency based on a preferred provide list. Claim 12 is thus further patentably distinguished over Heuval and Barber.

Allowability of Claim 16

Regarding Claim 16, contrary to the Examiner's assertion, Heuval and Barber fail to disclose or suggest in combination with the limitations of Claim 14, "... obtaining an identity for the core network to which the communication device attempts to connect using the pointer information." Neither Heuval nor Barber disclose or suggest obtaining a core network identity or use of a point to obtain the identity. Claim 16 is thus further patentably distinguished over Heuval.

Allowability of Claims Over Van Den Heuvel & Korpela

Rejection Summary

Claims 11 and 19 stand rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 5,781,850 (Heuval) in view of U.S. Patent No. 5,946,634 (Korpela). Office Action, 21 May 2004, para. 12.

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Allowability of Claim 11

Regarding Claim 11, contrary to the Examiner's assertion, Heuval and Barber fail to disclose or suggest in combination with the limitations of Claim 11,

... receiving network system information includes receiving system information in a wireless broadcast message,
the system information including information about multiple core networks sharing a common radio access network without identifying the multiple core networks;
attempting to connect to a core network based on the system information about multiple core networks sharing the common radio access network.

The Examiner's reliance on Korpela to address the deficiencies of Heuval is misplaced. At col. 6, lines 15-24, Korpela discusses periodically broadcasting the identity of a backbone network to which the access network is connected. In Claim 11, the multiple core networks are not identified. At col. 8, lines 44-49, Korpela discusses an alternative scheme for sending the identification information in session other than a broadcast message. Claim 11 is thus further patentably distinguished over Heuval and Barber.

Allowability of Claim 19

Regarding Claim 34, contrary to the Examiner's assertion, Heuval fails to disclose or suggest a

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... method in a communication device, the method comprising:

receiving first system information from a first access network and receiving second system information from a second access network, the first system information including a first core network identity and information on how many core networks share the first access network, the second system information including a second core network identity,

selecting one of the first and second core network identities based on the number of core networks sharing the first access network.

Heuval discloses a plurality of communication systems (11-17) that communicate with a common communication system (19) via a wireline system (18). In Heuval, the communication systems (11-17) each employ different radio access technologies, e.g., Iridium, GSM, PCS, UMTS, ETACS, etc. The common network (19) of Heuval is not an "common access network" relative to the other communication systems (11-17) since each system in Heuval includes its own access network. The common network (19) in Heuval merely provides a list of other access networks (11-17) available to the subscriber unit (20), Heuval, col. 2, lines 51-58. The common network (19) of Heuval also provides other information about the systems (11-17) including frequency band, modulation scheme, etc. Heuval, col. 3, lines 20-27. This information would not be required where multiple core networks share a common access network.

The Examiner's reliance on Korpela is misplaced. At col. 7, lines 18-34, Korpela discusses a mobile station in communication with multiple access networks. At col. 8, lines 35-44, Korpela discusses using broadcast information to select a radio access network, rather than a core network. Korpela and heuval nevertheless fail to disclose a communication device that

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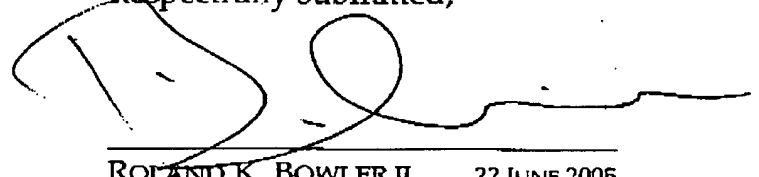
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receiver system information including a first core network identity and information on how many core networks share the first access network. Claim 19 is thus patentably distinguished over Heuval and Korpela.

Prayer For Relief

In view of the amendments and the discussion above, the Claims of the present application are in condition for allowance. Kindly withdraw any rejections and objections and allow this application to issue as a United States Patent without further delay.

Respectfully submitted,



ROLAND K. BOWLER II 22 JUNE 2005
REG. NO. 33,477

MOTOROLA, INC.
INTELLECTUAL PROPERTY DEPT. (RKB)
600 NORTH U.S. HIGHWAY 45, AN475
LIBERTYVILLE, ILLINOIS 60048

TELEPHONE NO. (847) 523-3978
FACSIMILE NO. (847) 523-2350